

# (12) United States Patent

# Privitera et al.

(10) **Patent No.:** 

US 9,408,659 B2

(45) **Date of Patent:** Aug. 9, 2016

# (54) SURGICAL INSTRUMENT WITH SEPARATE TOOL HEAD AND METHOD OF USE

(75) Inventors: Salvatore Privitera, Mason, OH (US);

Matthew J. Winkler, Liberty Township,

OH (US)

(73) Assignee: AtriCure, Inc., Mason, OH (US)

(\*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35

U.S.C. 154(b) by 248 days.

Appl. No.: 13/422,208

(22)Filed: Mar. 16, 2012

(65)**Prior Publication Data** 

> US 2012/0179153 A1 Jul. 12, 2012

# Related U.S. Application Data

- Continuation of application No. 12/061,319, filed on (63)Apr. 2, 2008, now abandoned.
- (60) Provisional application No. 60/909,666, filed on Apr. 2, 2007.
- (51) Int. Cl. A61B 17/10 (2006.01)A61B 18/14 (2006.01)A61B 17/00 (2006.01)
- (52) U.S. Cl.

CPC ...... A61B 18/1442 (2013.01); A61B 18/1447 (2013.01); A61B 2017/00243 (2013.01); A61B 2018/145 (2013.01)

(58) Field of Classification Search

CPC ...... A61B 2014/00243; A61B 2019/2234; A61B 18/1447; A61B 18/1442 USPC ...... 606/139, 142, 144, 145, 147, 151, 606/205-211 See application file for complete search history.

#### (56)References Cited

## U.S. PATENT DOCUMENTS

2,060,724 A	11/1936	Carroll
2,371,978 A	3/1945	Perham
3,032,039 A	5/1962	Beaty
3,496,932 A	2/1970	Prisk et al.
3,682,180 A	8/1972	McFarlane
3,854,482 A	12/1974	Laugherty et al.
3,856,016 A	12/1974	Davis

(Continued)

### FOREIGN PATENT DOCUMENTS

EP1 600 108 A3 3/2006 WO WO 98/18389 5/1998

> (Continued) OTHER PUBLICATIONS

Lynch et al, Recanalization of the Left Atrial Appendage Demonstrated by Transesophageal Echocardiography, Ann Torac Surg, 1997; 63:1774-5, Published by Elsevier Science Inc., © 1997 The Society of Thoracic Surgeons, USA.

(Continued)

Primary Examiner — Gregory Anderson Assistant Examiner — Christina Lauer (74) Attorney, Agent, or Firm - Porter Wright Morris & Arthur LLP; Ryan Willis

# ABSTRACT

Surgical instruments are disclosed in which an elongated shaft is used in conjunction with a separate, remotely actuable tool head for performing a procedure on a target tissue. The shaft has a tool engagement member carried at its distal end that is remotely actuable through the shaft to engage and release the tool head.

# 6 Claims, 4 Drawing Sheets

